Identification the First Priority over Effective Factors in Occurrence of Building Construction Accidents with Employing the Analytical Hierarchy Process Method, and Expert Choice Software

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Abstract

In this article- based on previous studies, applying a questionnaire with 81 parameters, and asking experts who mainly were labor inspectors and official judiciary experts on building construction accidents- 5 crucial factors and 13 extrinsic factors effecting on building construction’s safety has been identified, and then for determining the amount of effectiveness of each factors on safety with analyzing the data with AHP method, and based on 3 main experts’ comments.

Findings: the primary criterion- the height working (H) with weight 0.438- is the primary factor in building construction accidents. The sub-criterion- falling from scaffolding (H4) with relative weight 0.433 and combined weight 0.190 takes the first rank, and lack of edges protection [unprotected edge] (H2) with relative weight 0.342 and combined weight 0.150 are put in second position. After the height working, the criterion of excavation (G) with weight 0.262 is the second factor in occurrence of accidents. The sub-criterion of digging without protection (G1) with relative weight 0.571 and combined weight 0.149 takes the third place and sub-criterion
inadequate training (C1) with relative and combined weight 0.137 has the fourth position.

Conclusion: according to the findings, we can clearly state that the practical approach to increase safety and avoid accidents in building construction site becomes readily obtainable by using safety equipment in height working, using protection in the edges to prevent falling, and considering more safety measures in excavation time like testing the soil resistance and the strength of neighbor buildings, and finally safety training.

References


Index Terms

Computer Science Information Systems

Keywords
Expert Choice Software, Analytical Hierarchy Process